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Chronic Obstructive Pulmonary Disease (COPD) and Comorbidities

North Carolina 2009

Background

Chronic Obstructive Pulmonary Disease (COPD) is a lung disease characterized by chronic inflammation of the airways. The primary risk factor for COPD is cigarette smoking; other risk factors include long-term exposure to environmental lung irritants and certain genetic conditions.[1] COPD is also found to be associated with significant comorbidities, including heart disease, kidney disease, asthma, and arthritis, as well as various types of cancer.[2] A large-scale study, using electronic primary care records of more than 1.2 million patients, found that COPD was associated with significantly higher odds of cardiovascular disease, stroke, and diabetes mellitus.[3] There is growing evidence to suggest that systemic inflammation is potentially a common pathway for multiple chronic conditions found among adults with COPD.[4]

COPD can adversely affect one's quality of life (QoL). Depression has often been associated with COPD. In an observational study of 35,722 patients with COPD, the incidence rate of new-onset diagnoses of depression was significantly higher in the COPD group, compared to the COPD-free group.[5] Sleeping difficulties and physical inactivity are also common among those with COPD.[6,7]

The aim of this report is to enumerate the prevalence and risk of secondary chronic diseases, and poor quality of life, among North Carolina adults with COPD.

Methods

The study results were derived from the 2009 BRFSS (Behavioral Risk Factor Surveillance System) telephone survey of North Carolina adults, ages 18 and older. An affirmative response to the COPD screener question: "Have you ever been told by a doctor or health professional that you have COPD, emphysema, or chronic bronchitis?" defined the COPD study population. The comparison group consisted of all those who responded "no" to the screener question. There were 993 respondents who met the definition for COPD and 11,344 respondents who did not have COPD.

Poor quality of life was assessed from three questions, based on the number of self-reported days out of the past 30 days when (1) mental health was not good, (2) daily activity was restricted due to poor health, and (3) self-reported days of not having enough rest or sleep. For each question, the report of 14 or more days defined poor QoL. Lack of exercise in the past month was also examined as a QoL measure (Table 1). Seven chronic diseases were delineated from the survey: arthritis, diabetes, heart attack, coronary heart disease, stroke, kidney disease, and current asthma. A summary indicator variable, "Chronic disease index," was constructed for those having three or more chronic diseases, among the seven studied (Table 2).

Table 1.
Weighted Prevalence and Age-adjusted Relative Risk of Poor Quality of Life Among Adults With and Without COPD: 2009 NC BRFSS Survey (N=12,337)

Poor Quality of Life	Prevalence		Relative Risk	
	COPD %	No COPD %	aRR	95% C.I.
Number of days in past 30 when mental health not good 14 to 30 days	24.0	10.8	2.44*	1.90–3.12
Number of days in past 30 when poor health[1] restricted activities 14 to 30 days	31.3	12.8	2.10*	1.67–2.65
Number of days in past 30 with not enough rest or sleep 14 to 30 days	40.5	27.8	1.66*	1.41–1.95
Participate in any exercise activities in past month None	42.4	25.2	1.57*	1.36–1.80

Abbreviations: COPD – chronic obstructive pulmonary disease; aRR – age-adjusted relative risk.
*Statistically significant $p < 0.05$
[1]Poor health includes poor mental or physical health.

The Behavioral Risk Factor Surveillance System (BRFSS) is a random telephone health survey of non-institutionalized adults aged 18 and older in households sponsored by the Centers for Disease Control and Prevention (CDC). The North Carolina BRFSS operates through the State Center for Health Statistics' Survey Center, Division of Public Health, conducting interviews monthly in both English and Spanish. Go to www.schs.state.nc.us/SCHS/brfss/questions.html to view the 2009 questionnaire. For more detailed information about the survey, please visit the NC-BRFSS website at www.schs.state.nc.us/SCHS/brfss or contact the BRFSS Coordinator at (919) 855-4485.